

## Properties of Exponents

Date \_\_\_\_\_ Period \_\_\_\_\_

**Simplify. Your answer should contain only positive exponents.**

1)  $2m^2 \cdot 2m^3 = 4m^5$

2)  $m^4 \cdot 2m^{-3} = 2m^1 = 2m$

3)  $4r^{-3} \cdot 2r^2 = 8r^{-1} = \frac{8}{r}$

4)  $4n^4 \cdot 2n^{-3} = 8n^1 = 8n$

5)  $2k^4 \cdot 4k = 8k^5$

6)  $2x^3y^{-3} \cdot 2x^{-1}y^3 = 4x^2y^0 = 4x^2$

7)  $2y^2 \cdot 3x = 6xy^2$

8)  $4v^3 \cdot vu^2 = 4v^4u^2$

9)  $4a^3b^2 \cdot 3a^{-4}b^{-3} = 12a^{-1}b^{-1} = \frac{12}{ab}$

10)  $x^2y^{-4} \cdot x^3y^2 = x^5y^{-2}$

11)  $(x^2)^0 = 1$

12)  $(2x^2)^{-4} = 2^{-4}x^{-8} = \frac{1}{2^4x^8} = \frac{1}{16x^8}$

13)  $(4r^0)^4 = 4^4 = 256$

14)  $(4a^3)^2 = 4^2a^6 = 16a^6$

15)  $(3k^4)^4 = 3^4k^{16} = 81k^{16}$

16)  $(4xy)^{-1} = \frac{1}{4xy}$

Mr. Davis Solution Key

$$17) (2b^4)^{-1} = 2^{-1}b^{-4} = \frac{1}{2b^4}$$

$$18) (x^2y^{-1})^2 = x^4y^{-2} = \frac{x^4}{y^2}$$

$$19) (2x^4y^{-3})^{-1} = \frac{1}{2x^4y^{-3}} \\ = \frac{y^3}{2x^4}$$

$$20) (3m)^{-2} = 3^{-2}m^{-2} = \frac{1}{3^2m^2} = \frac{1}{9m^2}$$

$$21) \frac{r^2}{2r^3} = \frac{1}{2r}$$

$$22) \frac{x^{-1}}{4x^4} = \frac{1}{4x^4x} = \frac{1}{4x^5}$$

$$23) \frac{3n^4}{3n^3} = n$$

$$24) \frac{m^4}{2m^4} = \frac{1}{2}$$

$$25) \frac{3m^{-4}}{m^3} = \frac{3}{m^3m^4} = \frac{3}{m^7}$$

$$26) \frac{2x^4y^{-4}z^{-3}}{3x^2y^{-3}z^4} = \frac{2x^2}{3y^{-3}y^4z^4z^3} = \frac{2x^2}{3yz^7}$$

$$27) \frac{4x^0y^{-2}z^3}{4x} = \frac{4y^{-2}z^3}{4x} = \frac{y^{-2}z^3}{x} \\ = \frac{z^3}{xy^2}$$

$$28) \frac{2h^3j^{-3}k^4}{3jk} = \frac{2h^3k^3}{3jj^3} = \frac{2h^3k^4}{3j^4}$$

$$29) \frac{4m^4n^3p^3}{3m^2n^2p^4} = \frac{4m^2n}{3p}$$

$$30) \frac{3x^3y^{-1}z^{-1}}{x^{-4}y^0z^0} = 3x^3x^4y^{-1}z^{-1} = \frac{3x^7}{yz}$$